CHANGE OF MEDIUM OF INSTRUCTION IN THE TEACHING OF MATHEMATICS AND SCIENCE: IMPLICATIONS ON LEARNERS

A CASE STUDY ON FORM ONE STUDENTS OF SEKOLAH MENENGAH KEBANGSAAN TAMAN UNIVERSITI

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ABSTRACT

A sudden decision by the Ministry of Education to abolish ETeMS (English Teaching for Mathematics and Science) in soft-landing shocked the entire nation. ETeMS was introduced in the year of 2003 to improve the command of the English language among pupils at primary and secondary schools in Malaysia. However, in the year of 2010, a new education policy named MBMMBI (Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris) was introduced to replace the existing ETeMS. In relation to implications of policy change in the medium of instruction, many studies have been discussed on the learners’ performance rather than their attitudes. Therefore, this study is done to investigate the students’ attitudes towards the change. 73 Form One students from Sekolah Menengah Kebangsaan Taman Universiti were involved in this study. The objectives are 1) to investigate the students’ attitudes towards learning Mathematics and Science in two different languages, 2) to discover the implications of the change to the students’ English language usage. A set of questionnaire containing 50 questions were distributed to the students. The data collected were analyzed by using the Statistical Package for Social Science Software (SPSS). The findings revealed that the students have negative attitudes towards the change in the medium of instruction. The study also revealed that the change of the medium of instruction affects the students’ English language usage.
ABSTRAK

Malaysia dikejutkan apabila Kementerian Pelajaran Malaysia mengumumkan bawa polisi PPSMI (Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris) akan dihapuskan secara berperingkat. PPSMI diperkenalkan bertujuan untuk meningkatkan tahap penggunaan Bahasa Inggeris dikalangan pelajar sekolah rendah dan sekolah menengah di Malaysia. Walaubagaimanapun, pada tahun 2010, polisi pendidikan yang baru iaitu MBMMBI (Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris) diperkenalkan bagi menggantikan PPSMI. Banyak kajian implikasi perubahan polisi terhadap pencapaian pelajar dijalankan daripada kajian implikasi terhadap pandangan pelajar. Oleh sebab itu, kajian ini dijalankan untuk mengetahui pandangan pelajar terhadap perubahan bahasa pengantara. Seramai 73 orang pelajar Tingkatan Satu dari Sekolah Menengah Kebangsaan Taman Universiti terlibat dalam kajian ini. Tujuan kajian adalah untuk 1) mengetahui pandangan pelajar terhadap pembelajaran Sains dan Matematik dalam dua bahasa pengantara dan 2) meniasat implikasi terhadap penggunaan Bahasa Inggeris dikalangan pelajar. Satu set soal selidik yang mengandungi 50 soalan telah diberi kepada pelajar. Data yang diperoleh dianalisa dengan menggunakan Perisian Statistik Sains Sosial (SPSS). Hasil penemuan menunjukkan bahawa pelajar menunjukkan pandangan negatif terhadap polisi perubahan bahasa pengantara. Di samping itu, kajian ini telah mendedahkan bahawa terdapat implikasi terhadap penggunaan Bahasa Inggeris di kalangan pelajar disebabkan oleh perubahan bahasa pengantara.
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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study aims to investigate students’ attitudes towards learning mathematics and science in English during ETeMS (English Teaching for Mathematics and Science). Besides that, this study also aims to investigate the students’ attitudes in learning mathematics and science in bilingual; English and Bahasa Malaysia through the new policy of teaching mathematics and science which is MBMMBI (Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris) which was introduced this year. In general, the study aims to elicit information from the students on how they respond towards learning mathematics and science in different language of instructions. Lastly, the study aims to discover the difference in the level of English language usage among students during ETeMS and now in MBMMBI.

This chapter starts with the background of study where the implementation of a new policy in the national education system which was English as the language of instruction for ETeMS is discussed. A brief discussion of findings and conclusions reported in earlier related studies are also mentioned to provide background framework to the readers. This is followed by statement of problem and the research questions of the study. This chapter then proceeds by stating the objectives and the significance of the study to the pedagogical world. Finally, the scope of the study is indicated.
1.2 Background of the study

Malaysia is a multicultural and multilingual country with Malay language known as Bahasa Malaysia as the official national language. In order to unify the nation, a national education system with Malay language as the medium of instruction is being adopted for all primary and secondary schools throughout the nation. This medium of instruction is based on the Razak Report done in the year of 1955 which endorsed the concept of a national education system based on Malay (the national language). Later, in section 3 of the National Education Ordinance of 1957, the concept above by Razak was reproduced. It stated that “A national system of education acceptable to the people of the Federation [of Malaya] as a whole which will satisfy their needs and promote their cultural, social, economic and political development as a nation, having regard to the intention to make Malay the national language of the country while preserving and sustaining the growth of the language and culture of other communities living in the country.” Since then, Bahasa Malaysia (previously known as Malay language) is used solely as the medium of instruction in Malaysian education (The Razak Report, 1955).

However, in 2002, the Malaysian government which was under the leadership of Tun Dr. Mahathir Muhammad, the forth Prime Minister of Malaysia announced that English language will be used as the medium of instruction for the teaching of mathematics and science subjects in all primary and secondary schools. The policy which uses English as the language of instruction for the teaching of Mathematics and Science (PPSMI known in Bahasa Malaysia) was implemented in the national (Sekolah Kebangsaan) and vernacular primary schools (Sekolah Rendah Jenis Kebangsaan Tamil/Cina) and the secondary schools (Sekolah Menengah Kebangsaan). The policy was implemented in phases and eventually it covered all standards and forms in the primary, secondary and post-secondary classes in 2008.
The introduction of English as a medium of instruction in mathematics and science replacing the Malay language has been considered an effort in responding to the emergence of English as a global language in the era of globalization. It is clear that English is now well-established worldwide and Malaysia has to keep track of current global patterns or risk losing its competitive edge in the global economic growth. Moreover, it has been transformed by the massive boost in the flow of information in English via information and communications technology, as well as a new economic emphasis of turning this information into productive knowledge. Besides that, proficiency in English is an important aspect of human capital growth, particularly in the areas of science and technology. Thus, the execution of the policy of teaching mathematics and science in English is along side with the current development and which in turn would assist to strengthen the Malaysian students’ proficiency in English, thus permitting them to access fresh frontiers of information in these two subjects. Based on all the factors above, ETeMS has received overwhelming response by many people who wanted a change in the national education system.

However, in the year of 2010, the Malaysian government under the leadership of Dato’ Sri Mohd Najib bin Tun Abdul Razak, the sixth Prime Minister of Malaysia announced that the medium of instruction for teaching and learning of Mathematics and Science would be in bilingual mode; English and Bahasa Malaysia starting from 2011. According to a report released by the Ministry of Education entitled “Memartabatkan Bahasa Malaysia & Memperkukuhkan Bahasa Inggeris (MBMMBI, 2010)”, the change was made due to several reasons: 1) the result of the public examination; Ujian Penilaian Sekolah Rendah (UPSR), Penilaian Menengah Rendah (PMR) and Sijil Pelajaran Malaysia (SPM) revealed that both students from rural and urban schools had done well in Bahasa Malaysia compared to English, 2) there was a huge gap between rural schools and urban schools’ achievement in science and mathematics, 3) the findings from UNESCO (stated in MBMMBI report) show that students would be able to learn faster using their mother tongue in their early education.
As such, the policy of teaching and learning mathematics and science in English which was earlier thought to enhance the Malaysians’ English language proficiency was abolished. All students who entered Form One in secondary school in 2011 would be taught mathematics and science in bilingual. Instead, the move has made the national language, Bahasa Malaysia to be fully used in the teaching of mathematics and science starting from 2013. Thus, English language is now no longer the medium of instruction in teaching and learning of mathematics and science starting from 2015 and onwards.

1.3 Statement of the problem

ETeMS (English Teaching for Mathematics and Science) is a policy used to acknowledge the use of English as the medium of instruction in teaching and learning of mathematics and science in schools from the year of 2003 till 2010. The introduction of MBMMBI (Memartabatkan Bahasa Malaysia dan Memperkukuhkan Bahasa Inggeris) in 2011, a new education policy which uses bilingual; English and Bahasa Malaysia (national language) for teaching mathematics and science has replaced ETeMS. According to some quarters, this change of medium of instruction has created many problems. The study investigates possible problems faced by the students due to the change of medium of instruction.
Students especially from rural schools are believed to have problems in learning Mathematics and Science in English due to their lack of English language proficiency. Students who are non-proficient in English are negatively affected by the policy and moreover, and are said to be on the losing end as it is difficult for them to cope with English (Faizah, 2006). This affects the students’ achievement grades in mathematics and science subjects, especially in the public examinations; Ujian Penilaian Sekolah Rendah (UPSR), Peperiksaan Menengah Rendah (PMR), Sijil Pelajaran Malaysia (SPM) and Sijil Tinggi Pelajaran Malaysia (STPM). Besides that, the policy also is believed to affect the students’ interest to learn mathematics and science in English. As for this study, the students’ interest in terms of ‘positive’ and ‘negative’ attitudes towards learning mathematics and science in English is the major concern.

However, there are also problems when both English and Bahasa Malaysia are be used as the medium of instruction. Proficient learners who have good command in English and have learnt Mathematics and Science in this language have said to be de-motivated. Besides learning mathematics and science, they now have to learn the terms in Bahasa Malaysia which they are less proficient in. McDonough (1983), states that “motivation of the students is one of the most important factors influencing their success or failure in learning the language”. When the students are not motivated to learn mathematics and science in other languages rather than English, it might lead them to failure. As a result, the students’ achievement grades in mathematics and science might deteriorate. Thus, there is a need to investigate the students’ attitudes towards the change of the medium of instruction. This would determine if effort to help these students to cope with the new education policy is necessary.
Learning a language is beneficial, only when one practices it frequently. ETeMS is a platform for students to have more practice in the English language. Through ETeMS, students practice reading and writing in the English language. However, since the medium of instruction has changed, this scenario is no longer a reality. Obviously, students who had experienced using English in the classroom during ETeMS were expected to use it frequently outside the classroom. They extended their usage at home while speaking to parents or siblings, discussing their homework with friends, reading English books and listening to English songs. However, the new policy (MBMMBI) may change the scenario totally. This could lead to English language deterioration among students. This study investigates the implications of the change of medium of instruction towards the students English language usage.

1.4 Objectives of the study

There are three objectives of this study. The objectives are to investigate:

1. The students’ attitudes towards learning Mathematics and Science in:
   a. English,
   b. Bahasa Malaysia.

2. The implications on the students’ English language usage due to the change of the medium of instruction from English to Bahasa Malaysia.
1.5 Research Questions

The aim of this study is to answer two specific questions as listed below:

1. What are the students’ attitudes towards learning mathematics and science subjects in English?
2. What are the students’ attitudes towards learning mathematics and science subjects in Bahasa Malaysia?
3. What are the implications of changing the medium of instruction towards the students’ English language usage?

It is hoped that the answers to these questions will help to promote a better understanding to all readers and researchers, of the students’ attitudes towards learning certain subjects in different languages. Besides that, this is important for teachers especially those who are teaching mathematics and science in schools to understand their students’ feelings when they have to cope with different education policies. Lastly, this study is important to identify effective ways to help the students to continue on learning mathematics and science subjects successfully despite of the medium of instructions.